THE

LESSONS I RECEIVED

AND

MY PALI TOUR DIARY

SARDAR SINGH

JODHPUR

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PART I.

THE LESSONS I RECEIVED.

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I.—VILLAGE.

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I.—VILLAGE.

BEFORE settling down into villages the people had to pass through the following stages :—

(*i*) Savage stage.
(*ii*) Pastoral stage.

2. (*i*) *Savage stage.*—When men were savages and did not know cultivation, they lived on fruits and game and dwelt in big nests built on trees or in caves.

3. (*ii*) *Pastoral stage.*—Afterwards they kept flocks of sheep and goats

and a few cows and buffaloes and tended them. They wandered with them to places where there was good pasture to be found, encamping at one place for a few days and then shifting to another.

4. But as they became more civilized, they constructed temporary huts of twigs and branches with a roof thatched with dry leaves. They cleared a piece of land from jungle and ploughed the soil. They raised repeated crops on it, till it was exhausted, left it to be overgrown with jungle again, and then moved on to some other place with their live-stock, &c., to repeat the same process. Land was plentiful and could be had without rent.

5. After a lapse of several generations, when they took to cultivation in earnest, and the population increased, the demand for land became greater; men settled at one place, built permanent huts, and cultivated the

surrounding lands. As the value of the land increased, possession became firmer. They generally settled in plains where water was plentiful. Gradually they sank wells, dug tanks, canals, &c. One of the reasons of their settling in villages was the fear of attacks from wild beasts and their still wilder and more formidable neighbours.

6. The existence of a village is detected at a distance, generally by a large prominent grove of trees during day-time and by the barking of a dog or by fire-lights at night. We generally find outside the village a *talao* तलाव or *nadi* नाडी with *chhatries* छत्री (cenotaphs) on its banks, or the drinking-water well.

7. In arid parganas the village well is the most interesting place. Hundreds of sheep and goats and herds of cows, buffaloes and camels patiently await their turn to take a few draughts of water at the well.

8. The village itself is fenced with strong hedges called *bar* बाड़ and has not generally more than one or two entrances, which are called *phalsa* फ़लसा. At these entrances the sweepings and village rubbish are thrown and dung-hills, *ukarris* उकरड़ी, are formed. The streets of the village are narrow and irregular, but there is generally a broad open square in the middle of the village where the *mahajans* महाजन and artisans have their shops. It is the village mart.

9. The houses are of four descriptions—

(1) *Jhunpa* झूंपा
(2) *Parwa* पड़वा
(3) *Ghar* घर
(4) *Haweli* हवेली

10. (1) *Jhunpas* झूंपा are constructed with reeds and rushes, with a conical roof. These are to be found where there are no stones and the soil is sandy.

11. (2) *Parwas* पड़वा are houses generally made of sun-burnt bricks, and covered with partially baked tiles on sloping roofs: shed-roof ones are known as *aikdhala* इकैढाला and those with gabled roof as *dodhala* दुढाला. Such houses are made where wood is plentiful and the soil clayey.

12. (3) *Ghar* घर is a house made of mud walls and flat mud roofs supported on crude beams of *babul* बावल and *khejri* खिजड़ी. It is in houses of this kind that the poor classes live in better parganas.

13. (4) *Hawelis* हवेली are pucca houses with stone ceilings and chunam-plastered walls. Among cultivators, they are found mostly in Nagore, owned by Jats.

14. The chief population of the village is formed by the cultivators ; but, besides these, one or two houses belonging to each of the artisan-classes

are also found. These are—(1) the carpenter who makes carts, agricultural implements, the Persian Wheels, &c. ; (2) the blacksmith to make and repair implements ; (3) the kumbhar to make earthen pots and *gharlees* गढ़लौ for the Persian Wheel, not to speak of bricks and tiles, and (4) the bhanbhi भांभी to make leather buckets *charas* चड़स, leather ropes *loa* लाव and shoes. The last named also weaves *reja* रेजा cloth for the villagers. Without them the village is not complete. (5) Bohras also play an important part in the village population.

15. In villages where the area of each holding is very extensive, and the soil is poor as in Phalodi, Sheo and other arid parganas, each holder has his hut in his own field. It is called *dhani* ढाणी. Here he keeps his family, cattle and all his belongings. The number of *dhanis* ढाणी in a tolerably big village comes up to 60.

II.—SOILS.

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Classification of soils.

1. The chief natural classes of the soil in Marwar are—

(A) *Matiyali* मटियाली
(B) *Bhuri* भूरी
(C) *Retli* रेतली
(D) *Magra* मगरा
(E) *Dheri* डेहरी
(F) *Dhora* धोरा

Description.

2. (A) *Matiyali* मटियाली is the clayey loam and is of three kinds—

(*a*)	*Kali* काली	... Black.
(*b*)	*Rati* राती	... Red.
(*c*)	*Pili* पीली	... Yellowish.

(B) *Bhuri* भूरी is brown in colour and has less clay in it.

(C) *Retli* रेतली is sandy and has no clay at all.

(D) *Magra* मगरा (*Tharda* टरडा) is hard and has greater admixture of stone and pebbles, as it is situated near the slopes of hills.

(E) *Dheri* डेहरी. When any one of A.,B. or C. class comes in a depression wherein the waters of the surrounding country collect, it is called *dheri.*

(F) *Dhora* धोरा. Hillocks or mounds of sand where *bajra* बाजरा and *moth* मोठ are grown.

3. The first two classes are known as *Sewaj* सेवज, when wheat and gram are produced therein, simply by the rain-water, without being irrigated.

Their fertility and the crops they produce.

4. Of all the soils *matiyali* मटोयाली is considered the richest, as it can produce wheat and cotton and can be used successively

for many years without being left fallow. It requires heavy rains and produces good crops. It is stiff, and so it requires a great deal of labour. Being rich, it does not want frequent manuring. The fields having clayey soil will produce good *Sawnu* सावणु crops of *til* तिल and *jawar* जवार which need better soils than *bajri* बाजरी and *moth* मोठ.

5. Next to it, comes *bhuri* भूरी. It requires moderate rains, and is best fitted for producing good *Sawnu* सावणु crops. It wants manuring, as it loses its strength. After it has been used for three or four years, it is left fallow for three or four years to regain strength.

6. *Retli* रेतली. It is a purely sandy soil ; when used for *Sawnu* सावणु crops, no manure is applied.

7. The *siniya* सिनियां and *pohg* फोग bushes which grow on it, supply

the place of manure. It requires light and timely rains. It yields good crops of *bajra* बजरा and *moth* मोठ only.

8. *Magra* मगरा. It is hard and has a great admixture of stone and pebbles. It is very poor; but as it generally lies at or near the foot of hills, if it be not very slopy, it receives the drainage from the hills, which helps it much in producing *Sawnu* सावणु crops *til* तिल and *bajri* बाजरी.

9. *Dheri* डेहरी is considered good, as it receives and retains the drainage of the adjacent high-lying land. It yields good crops of *bajri* बाजरी and *jawar* जवार.

10. *Dhora* धोरा consists of hillocks or mounds of sand and is a very poor soil. It does not require heavy rains, as it absorbs every drop of water that falls on it. It is allowed to lie fallow

for four or five years and, as such, it produces good crops of *bajri* बाजरी and *moth* मोठ.

11. Fields situated near the villages and rich in manure, are called *kheras* खेड़ा—homestead. As they receive the silt of the village and droppings of the cattle, they are considered rich.

Terms used in Settlement papers.

12. Terms used in Settlement papers are—

	URDU.	MARWARI.
(*a*) Irrigated ..	*Abpash* आबपाश;	*Peal* पीयल.
(*b*) Unirrigated ..	*Barani* बारानी;	*Sawnu* सावनु.

(*a*) has five kinds—

(1) *Chahi mithani* चाही मीठानी, that which is watered by sweet wells.

(2) *Chahi kharchi* चाही खारची, that which is watered by saline wells.

(3) *Nehri* नेहरी, that which is watered by canals.

(4) *Sailaba* सइलाबा, that which is watered by inundations. In Marwari it is called *ner* नेर.

(5) *Kans* कांस, that which is watered by springs.

	Urdu.	Marwari.
(*c*) Culturable ..	*Mumkin* मुमकिन;	*Aráwá* अड़ावा.
(*d*) Unculturable,	*Gairmumkin* गैरमुमकिन;	*Nikam* नीकाम.
(*e*) Cultivated ..	*Mazrua* मज़रुआ ;	*Behtal* बेहतल.
(*f*) That which is uncultivated for the last four years is called *recent fallow.*	*Jadid* जदीद ;	*Beera* बीड़ा.
(*g*) Old fallow that has not been cultivated for more than four years is called *uftada.*	*Uftada* उफतादा;	*Partal* पड़तल.
(*h*) Waste land ..	*Banjar* बनजर;	*Partal* पड़तल.

13.—*Scale of Revenue rates per bigha.*

No.	CLASS OF SOIL.	RANGES						REMARKS.
		From			To			
		Rs.	a.	p.	Rs.	a.	p.	
1	*Sewaj* सेवज { Wheat-producing.	0	12	0	1	4	0	
2	Do. सेवज { Gram-producing.	0	6	0	0	12	0	
3	*Matiyali* मटियाली	0	5	0	0	10	0	
4	*Bhuri* भूरी	0	4	0	0	6	0	
5	*Dheri* डेहरी	0	3	0	0	5	0	
6	*Relli* रेतली	0	1	6	0	5	0	
7	*Tharra* ठरड़ा	0	1	6	0	3	0	
8	*Dhora* घोरा	0	0	6	0	2	0	

III.—WATER.

III.—WATER.

1. Water is scarce in Marwar. The average rainfall is 14 inches. The rivers that flow in the country are rain-rivers.

The water is of two kinds—

2. (1) *Palar* पालर (rain-water). It is stored for irrigation by *bundhs* बंध. If small, the *bundh* is called a *nadi* नाडी. If of an average size, it is called a *talao* तलाव. If large, it is known as a *bundh* बंध. The first two are mostly meant for supplying water for drinking and the third for irrigation purposes.

3. The biggest *bundh* बंध is at Bilara. It is named Jaswant Samand. It is a grand work of Mr. Home's

eminent skill. It is constructed across the main stream of the Luni. It has slightly sweetened, and raised the level of the water in the villages 100 miles below. In Bali there are three *bundhs*; the one at Sadri, the second at Magar Talao and the third at Bagol. the area they irrigate is not very considerable.

4. In the town of Jodhpur, rain-water is carried by means of canals to the big tanks.

5. (2) *Bakal* बाकल (subsoil water). It is of two kinds—

(*A*) *Jharna* झरना (oozing out from the ground) and *kans* कांस (surface springs).

(*B*) Below surface as in wells. It is of four kinds—

6. (*a*) *Bairawana* बैरावना (very saline). The water of certain places in Thali थली is so poisonous to both man

and cattle, that only a few draughts must be sipped. If one drinks more, one is sure to die, and no medical aid can do any good ; but if some rain-water, which is usually kept under lock and key, is available, the sufferer would revive.

7. The Hindi couplet says—

Hur sun mili halti ghori,
*Mot nahin to chal Makodi,**
Nahsi nahin to dhosi pav,
Marsi nahin to charhsi tav.

हरसूं मिलो हालतो घोड़ी ॥
मोत नहीं तो चाल मकोड़ीं ॥
नासो हीं तो धोसो पाव ॥
मरसौं नहीं तो चढ़सौं ताव ॥

" If a mare in good condition sips the water, it is sure to die ; if not destined to die, let us go to Makodi. If we do not bathe, but simply wash our feet, we are sure to get fever, if not death."

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* A village in Nagore, notorious for its bad water.

8. (*b*) *Khârâ* खारा (brackish). This produces an excellent crop of wheat.

9. (*c*) *Jogwân* जोगवान. It is slightly brackish. It assists the growth of *goojji* गुजीं (mixed crop of wheat and barley). If rains be heavy, cotton can be grown on lands irrigated by this water.

10. (*d*) *Meetha* मींठा (sweet): useful for barley crop. It produces two crops.

In sandy parganas, the wells are very deep, and the water is from 150 to 300 feet deep. The deep wells hold out even in a year of scarcity. The water-level sinks as we proceed westward from the Aravallis.

11. The wells constructed of mud masonry last from 8 to 10 years. The wells of rough pucca masonry last for more than 100 years; and those built of strong pucca masonry, still longer.

12. The cheapest wells can be dug near the Luni, but they are mere pits of water. The drinking wells are called *peech-ka-bera* पीच का बेरा.

Different kinds of wells are—

13. (1) A well (*Kuo* कुओ, *Bero* बेरो, *Dhimro* ढोमड़ो) is a narrow vertical round pit sunk into the ground. It is either pucca पक्का or kutcha कच्चा. When lined with bricks or stones and chunam, it is pacca पक्का; while the kutcha कच्चा one is only lined by a cylinder of twined branches of *fog* फोग, or plastered with hard clay.

14. (2) *Baori* बावड़ी is a pucca-built well with a flight of stairs on one side, leading to the bottom of the well.

15. (3) *Jhalra* झालरा is a sort of *baori* बावड़ी with a flight of stairs on all the four sides.

16. (4) *Riya* रिया is a temporary pit sunk in a river bed. It is filled up with sand when the river is flooded.

17. (5) *Adwania* अड्वानिया is the term for a pit to which water is carried by a canal from a neighbouring tank and then lifted for irrigation.

IV.—MANURE.

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1. In agriculture, manure is a necessity. The *Matiali* मटोयाली and the virgin soil require little of it. In Marwar there are four kinds of manure in general use—

(1) *Gore khat* गोर खत (cattle manure).
(2) *Mingni khat* मींगनी खात (sheep and goat manure).
(3) *Ukkarri khat* ऊकरड़ी खात (dung-hill manure).
(4) *Chir* चीड़ (urine of camels).

2. Fresh dung is not used, as it attracts white-ants, which do harm. The soil watered by sweet wells, is manured at the rate of 5 cart-loads of *mingni* to 10 cart-loads of *gore* per bigha. The price of a cart

cow and sheep dung manures is annas 2 and 8 respectively. If manure be not insufficient, *Sewaj* सेवज lands receive it every third year.

3. A flock of sheep is allowed to graze by day and sit by night in a field to manure it with their excretions.

4. The right of *bapi* बापी (occupancy) creates permanent interest in land, and so *Bapidars* take more care of their holdings and manure them as much as their means would allow.

5. Dr. Voelckers draws attention to the great usefulness of the droppings of the cattle as manure. But here *gobar* गोवर excretions are mostly turned into cakes, and sold as fuel. These cakes are of two kinds—

Arania आरानीया: droppings dried in the natural form.

Thaparian थापड़ीयां: made into cakes with straw.

6. In rainy seasons suburban cattle-owners find a good market for dung-cakes, as little fuel of other kinds is imported in the city, and beasts of burden as well as the villagers are mostly occupied in agricultural operations. To limit their use, we have started fuel and fodder reserves in Hemaliawas Khurd, Barsan, Murdawa, Gura Bisnoia, Nayagaon, and Manjwas.

7. This scheme when successful will bring in more wood which will save more manure ; and more manure means a better crop ; and a better crop would bring more revenue to the State ; while to the cultivator it will give more fodder for his cattle, better live-stock, and with it prosperity.

8. The urine of cattle is allowed to go waste. Dr. Voelckers recommends putting a litter under the cattle to retain the urine ; the straw so saturated, furnishes a good manure.

9. The night-soil (*mela* मेला) is not used openly. The village children attend to calls of nature on the dung-hills and the sweepings of the house also contain a little of their excretion. It is only by this unknown way that it enters in the *Ukkarri* उकारड़ी class of manure.

10. *Rakh* राख (ashes) has its value as manure. The Grassias break up virgin soil by what the Foresters call a destructive process. They set fire to the shrubs and trees standing on a piece of ground. When they are reduced to ashes, they plough it up, the ashes supplying the manure.

11. Bones, when ground to a coarse meal, can be used as manure; but it is seldom done in Marwar. The only use till now made of bones is by the sweepers, who construct kennels for the pigs by cementing the bones with mud.

12. *Khal* खल, the refuse left after the oil has been pressed out from the oil-seeds, is a manure ; but it is seldom used here, as it is generally given to cows and she-buffaloes to produce milk rich in *ghee*.

13. In some villages of Godwar, there are ditches outside in which the sweepings of the houses are thrown. There are sewers for water also, which carry the drainage to the ditches. This sewage makes good manure.

V.—GRASS.

V.—GRASS.

1. What grain is to us, grass is to cattle. It is their staple. It can be arranged under two classes—

(1) Irrigated.

(2) Unirrigated.

2. Under (1) come lucerne and *chini** *ghas* चीनी घास (guinea grass). Both of them are imported. Once sown, the lucerne lasts for three years, and the *chini* longer.

3. Every twentieth day they can be sheared. Lucerne receives water every fourth day and the *chini* fortnightly. The former is the best. The condition, its feeding brings the horses and cattle in, does not last long afte its use is given up or stopped.

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*The word "guinea" is corrupted into *chini* as *chini moorgi*, guinea-fowl.

4. Class (2) can be arranged under two heads: (1) *Pulla bund* पुला बंद, grass tied in bundles (*pulas*), and then stacked; (2) that which is collected in heaps and not tied into *pulas* पुला. The former kind is represented in Marwar, by the following eight sorts:—

(*a*) *Dhaman* धामन. It is common all over sandy districts. It is an excellent grass for both horses and cattle. In some districts it is considered to be the best kind of grass for increasing the milk of cows.

(*b*) *Karar* करड़. It is common in the *jors* जोड़ when soil is good. It is both grazed and stacked, and is much eaten by buffaloes. Mr. Duthee says, that where this grass will grow, wheat will grow.

(*c*) *Seran* सेरन. It belongs to the same class as *karar*. It is one of the best fodder-grasses in Rajputana. It is common in the Godwar and Sojat forests.

(*d*) *Surwalla* सुरवाला. It rises in height to two feet and has narrow leaves. It is abundant both in the plains and hills of Marwar. It is largely used for fodder both before and after it has flowered, but chiefly when it is young and tender. It is said, that it will keep good in stock for twelve years.

(*e*) *Baru* बरू. It is common all over cultivated and uncultivated grounds. It is considered to be a good grass, both for grazing and as hay. The seed of this grass collected and mixed with *bajra* is eaten by the poorer classes. Native pens are made from the stems of this grass. Horses and cattle are fond of it, both in dry and green condition. In some districts, it is considered to produce injurious effects on cattle, if eaten very young.

(*f*) *Chenki* चेंकी. Horses and cattle eat it when young; camels also eat it. It is one of the common grasses of Marwar.

(*g*) *Lamp* लांप. It is common on dry, sandy and stony ground. It is not considered a good fodder grass.

(*h*) *Dab* दाब or *kusha* कुशा. It is abundant in the plains on all kinds of soil. In saline (*usar*) soils, it is usually found in the low-lying portion where water collects. Cattle do not eat it as a rule, though it is liked by buffaloes, when young. It produces a fairly strong fibre which is much used for making ropes. When other grasses fail, it is often used as fodder. This species is considered sacred.

. The second class is represent-
y—

(1) *Dob* दोब or *dabra* डाबड़ा. It is rarely found on sandy soils. It grows where there is abundance of water. It is by far the most useful of all fodder grasses, especially for horses. It remains all the

year round. It makes excellent hay, and will keep good for many years in stack.

(2) *Bhurt* भुर्ट. It is much valued as a forage grass, on account of its early appearance. It is much grazed when tender or young, but is not suitable for stacking. The seed is mixed with *bajra* flour and used as food by the poorer classes. Cultivators say that it increases the milk of cows. Horses also feed on it. It may be tied into *pulas;* but, owing to the prickly nature of the seed, people do not handle it.

(3) *Tantia* तांतिया prefers a sandy soil. It is a good fodder grass both for horses and cattle, but in

Marwar if other grasses be available, *tantia* तांतीया is not much liked.

(4) *Makra* मकड़ा. It also grows on sandy soils and is considered good both for horses and cattle.

(5) *Bekria* बेकरीया (more a plant than a grass) is eaten by camels and buffaloes. It is very common in Marwar, and is the poorest fodder.

VI.—CATTLE.

VI.—CATTLE.

1. Cattle can be arranged, according to their use, into three chief heads—

I. Draught cattle.
II. Milch cattle.
III. Those yielding wool and milk as well.

I.—DRAUGHT CATTLE.

Under these come (1) bullocks, (2) camels, (3) donkeys, and (4) he-buffaloes.

Bullocks.

2. (1) Bullocks of various breeds are found in the country, but only two deserve mention, *viz.*, those of Sanchore and Nagore. The bullock of purely Sanchore breed has smaller ears,

broader chest, and thinner tail, than that of Nagore breed. The latter, though taller at the hump, is smaller in height at the back, a few inches from the tail.

3. The Nagore bullock, which is famous throughout India, finds better pasture and water with, and is better tended by, the Sawalakh Jat. He buys young calves of Sanchore breed at the Tilwara Fair, and feeds, rears and trains them up. They are then disposed of at the Tejaji, Pushkar, Hisar and Jodhpur Trevor Fairs. The price of a good pair of bullocks ranges from Rs.200 to Rs.400.

4. Ordinarily, bullocks of good breed are employed in drawing carts, carriages and artillery, while those of inferior breed are used for ploughing, lifting water from wells, thrashing corn and transporting on their backs grain, fuel, grass, water *pakhals* पखाल and

articles of trade such as *gur* गुड़, salt, cloth, &c.

5. The chief diseases which attack oxen are—

(1) *Muaro* मूआड़ो and *khuraro* खड़ाड़ो.

6. The complaint is known as foot and mouth disease. *Muaro* is the name given to the first stage of this disease, when whitish mucus is discharged from eruptions in the mouth. Constant flow of mucus and foam coming out of the mouth, is the first symptom. It lasts about three days, and is not so fatal in the semi-desert regions as in the north-western districts. Then *khuraro* sets in, and the hoof begins to fall off, and is replaced by a new one.

7. (2) *Mota rog* मोटारोग (Pleuro Pneumonia). It is a lung disease and does great havoc.

8. (3) Small-pox माता.

In it, soothing draughts are given.

Camel.

9. The camel is the ship of the desert and is the most useful animal in Marwar. It is chiefly used as (*a*) *sawari* सवारी (riding) camel and (*b*) as *ladhu* लधू (draught) camel.

Sawari Camel.

10. (*a*) The best riding camels of Marwar breed come from Sheo, and are known as "Rama Thalia." They are said to travel 80 or even 100 miles a night. Phalodi, Shergarh, Sankra, &c., also supply good riding camels, but not equal to the "Rama Thalias." The price of a good riding camel ranges from Rs.150 to Rs.300.

Ladhu Camel.

11. (*b*) *Ladhu* लधू camel is inferior in breed to the riding camel, and is more a beast of burden. It is used in

ploughing in sandy regions, and is the chief means of transport.

12. Female camels called *sând* सांड are more kept for breeding purposes than as transport animals, as they are not so strong and cannot bear as much fatigue as the male ones. Their milk is used by the Raikas and other classes.

The dangerous diseases from which camels suffer are—

13. (1) *Kalia bao* कलीया बाव.

It is a very dangerous disease. The animal attacked by it shivers, falls down and expires. Its treatment is to slit its ears. If blood comes out of it, it is safe; if not, the disease is sure to end fatally.

14. (2) *Tibursa* तीबरसा.

It is a sort of remittent fever which lasts for three years. The patient avoids sitting in the moonlight and seeks shade. Under its influence, it gradually wastes away and dies.

Donkeys.

15. They are the most hardworking and the least-cared-for animals. They are useful as transport animals, and are to be found more in the rough and hard districts than in the sandy ones. They are kept by the Beldars and the Kumbhars.

He-buffaloes.

16. A buffalo, from his natural inactivity and indolent habits owing to his heavy body, is not a general favourite, and there is no great demand for him. He is kept by the sweepers. A good buffalo fetches about Rs.25 in the market.

17. The diseases of the buffalo are—

(1) *Jhe-i-ya* जईया.

It is a skin disease and disappears in three days, if promptly attended to.

(2) *Chiri* चौड़ी.

It is an affection of the lungs. The animal foams at the mouth. It refuses to take food and dies within 12 hours, if not treated promptly.

II.—CATTLE YIELDING MILK.

18. Under these come (1) cows, (2) she-buffaloes.

19. Cows and she-buffaloes are the chief animals which yield milk. A good cow gives from four to six seers, and a good she-buffalo six to eight seers at a time ; the milk of the latter which requires better and more food, is richer in *ghee*. A good cow fetches from Rs.40 to Rs.70, and a good she-buffalo from Rs.60 to Rs.80.

20. Sanchore cows are decidedly superior to Nagore cows in breed and in the yield of milk, but there is no district in Marwar which can boast of its own breed of she-buffaloes.

III.—CATTLE YIELDING WOOL.

21. She-goats and sheep yield milk and wool. The quantity of milk given by she-goats of best breed, which come from Jaitaran and Godwar Parganas, and are known as *pahari bakris* पहाड़ी बकरी, sometimes amounts to 3 seers at a time, while that given by a sheep is at the most ¾ of a seer. The milk of the sheep is very rich in *ghee*, though its *ghee* is of very inferior quality. A sheep is sheared twice a year, and each time about half seer of wool is obtained. Blankets made of wool are called *kamal* कामल, and those of goats hair (*Jat* जट) *patian* पटीयां.

Goat diseases are—

22. (1) *Gultia* गलतिया।

When the animal is attacked with *gultia*, a throat disease, the only remedy is to open the affected part with a lancet, where a poisonous fluid is collected ; but care should be taken that the incision be not too deep.

23. (2) *Barukia* बरुकीया.

When the animal is attacked with it, it turns round and round, falls down and dies. There is no remedy.

24. (3) *Phepuria* फेपुरीया.

It is an affection of the lungs.

25. (4) *Mata* माता.

When small-pox breaks out amongst them, nearly 60 per cent. are carried off.

VII.—WOOD AND TREES OF MARWAR.

VII.—WOOD AND TREES OF MARWAR.

1. Wood includes timber and fuel. Timber we call *kabara* कबाड़ा. It is used in building houses and making agricultural implements. Fuel we call *baltia* बलीता.

2. The timber trees that we usually meet with are *banwal* बांवल, *nim* नीम, *rohira* रोहीड़ा, *shisham* शीशम and *ber* बेर.

3. The fuel trees are *khejra* खेजड़ *sandessra* संदेसड़ा, *goondi* गूंदी, a the sacred trees are *bar* बड़ a *pipal* पीपल. Among the shrubs find *ak* आक, *anwal* आंवल and *k* केर.

Banwal बांवल (*acacia arabica*).

4. It is much used and is a very useful tree. Its green beans called *hillaries* हौंलारी are held to be good fodder for goats and camels. The village children dry them, and string them in a thread. These are used as tinkling ornaments for the feet. The twigs and leaves are eaten by camels and goats. The former are useful in keeping the twin ropes of the Persian Wheel, on which the earthen buckets are tied. The plough and other implements are made of its wood. Its timber is largely used for door frames and planks.

Nim नीम (*Melia indica*).

5. It is one of the holy trees of the Hindus. Its timber is good. It is never cut while green. Its shade is held to be healthy. The pulp of the ripe fruit is sweet and eaten by the people. It has great medicinal value. Its leaves are eaten by camels.

Rohira रोहीड़ा
(*Tecomia undulata*).

6. It is a tree of moderate size; and is frequent in the plains. It bears beautiful flowers during the cold weather. There is a proverb *Rup rura gun bahira, Rohira ra phul.* रूपरूड़ा गुण वायरा रोहीड़ारा फूल. "Excellent in beauty and of virtue void is the flower of Rohira." It is applied to a gaudy worthless fellow. Its wood is used in making toys. It is the best wood for carving. If it is kept for some years, it becomes valuable for furniture. It is durable and well grained. The leaves are eaten by cattle.

Shisham शीशम
(*Dalbergia Sessa*).

7. It is planted along the roads at Jodhpur. It is a very good timber tree.

Ber वेर (*Zizyphus*).

8. It has its use in each and every stage of its growth. When a mere shrub, its dried leaves called *pala* पाला, are

a valuable fodder. In years of famine, it brings in a decent revenue to the *Bapidar.* Its twigs with thorns when fresh, are used in making fences round a field or a piece of land, enclosed for keeping cattle, or storing fodder. When old and worn out, they are used in making *tatis* टट्टी. Its berries are eaten as fruits, and its seeds used for making beads of *mala* माला. When the tree grows to a decent height, its wood is used for various purposes, such as the *pagas* पागा of the bed-steads, *ceses* ईस and various agricultural implements. The bark of the tree when powdered has medicinal value, and is also used for dyeing leather and distilling liquor.

Imli इमली
(Tamarind).

9. It is a big tree. The fruit makes a good syrup and flavours curries. It is also used as a medicine for sunstroke. The seeds are

roasted and eaten by the poor, instead of betel-nuts, and are much liked by women. Its cooling shade is considered injurious to a weary traveller.

Jal जाल.

10. It is of two varieties, one resembles willow and olive trees, and its fruit is eaten. The other has hanging branches. The ripe fruit is called *pillu* पीलू, a Marwar grape. When dry, it is called *kokarian* कोकड़ीयां. It is used by people and cattle alike. It is said to be the mustard tree of the Holy Bible.

Khejra खेजड़ा
(Prosopco sp'ajra).

11. It is a tree of the dry climate and chiefly found in Marwar. Its flowers called *long* लोंग are used as a forage for camels. Its *phali* फ़ली which forms a good vegetable, has got three names—*toia* टोइया (when it buds), *sangri* सांगरी (when it ripens) and *khokha* (when it is dried). In severe famines its

bark is eaten mixed with flour. The tree is held sacred by the Bishnois. The wood is used for building purposes; but it is not a good timber. It makes good fuel. Green wood is used for burning lime. It is deep rooted.

Sandessra संदेसड़ा
(Poinciana Clola).

12. It is a large shady tree. The wood is used as a poor fuel. The lopping, if planted in rainy season, sprouts out soon.

Goondi गूंदी
(Cordia Rollu).

13. The fruits are eaten. The bark is chewed with catechu by the poor, instead of *pans* पान. The *gonda* गूंदा is bigger and its fruit makes a good pickle. The wood is flexible.

Bar बड़
(Banyan).

14. It is a grand stately tree and furnishes an excellent shade. The wood is not used as it is held an object of worship.

Pipal पीपल *(Ficus).*

15. This is a sacred tree frequent about temples. The roots have medicinal virtues ; but the wood is of little value. Camels eat its leaves. In Godwar, the Baories invoke *pipal* पीपल to punish them, if they break their vows.

Ak आक *(Calotropis Porcera).*

16. It is very common in sandy soil. It flowers after the rains. The milky juice and the flowers are the rural medicine for cough. Ropes for bedsteads are made of its bark fibre.

Anwal आंवल *(Cassia auriculota)*

17. It is abundant in the plains of Godwar, Sojat, Jalore, and Jaswantpura. The bark is extensively used for tanning and dyeing leather. The root is useful for manufacturing country liquor. The flowers are eaten by Bhils as food and as an intoxicant. It bring in a revenue of Rs. 20,000 to the State.

Kair केर (*Coppous ophytha*).

18. It is very common in sand
places. Its wood i
very strong and du
able. It is used i
making pivots for the stone flou
mills. In sandy places, it is used t
make the foundation of well wall
The tiny red flowers and raw po
of the *kair* केर are used as vegetabl
and pickles respectively. The ri
kair केर is termed *dhalu* ढालू whi
the poor people gather together fro
under the trees. The powdered d
kair केर is used as a remedy
rheumatism.

Phog फोग (*Calligonum Polyjonvides*).

19. It is an almost leafless shru
found in the northe
arid villages of M
war. The twigs
used in building huts and kutcha we
The green branches are eaten
camels. The buds called *lasson* ल
are used by the poor as food in Feb
ary and March.

VIII.—AGRICULTURAL APPLIANCES.

VIII.—AGRICULTURAL APPLIANCES.

1. Agricultural appliances can be arranged under the following heads:—

- I. (*a*) Means for cultivation and clearing the soil for cultivation; (*b*) Ploughing and sowing.
- II. Water-lifts.
- III. Implements for reaping.
- IV. Implements for thrashing and winnowing.
- V. Means for transport.

2. I.—(*a*) MEANS FOR CULTIVATION AND CLEARING THE SOIL FOR CULTIVATION.

(1) The axe (*kuwario* कुवाड़ियो).

(2) The spade (*kashi* कषी).

3. These are respectively used to cut trees and dig out shrubs to clear a plot for cultivation. The latter implement is also used for levelling small mounds in the field, digging a pit and scraping certain kinds of grasses.

4.—(*b*) IMPLEMENTS FOR PLOUGHING AND SOWING.

5. (1) The plough (*hal* हल).

It is used for breaking the soil. The chief parts of which it is made, are *hal* हल (the wooden boot); *nali* नाली (a peg attached to the upright shaft let into the boot and used as a handle); *hál* हाल (the shafts tretching between the bullocks); *halwani* हलवानी (iron plough share); *janwari* जंवाड़ी (the yoke), and *jot* जोत (the collar strap).

6. (2) *Bijni* बीजनी or *nai* नाई is made of a hollow bamboo, with a funnel-shaped mouth at one end. It is used for sowing seeds with the drill and is attached to the upright shaft of the plough.

7. (3) *Kuri* कूड़ी or *sawar* संवार (clod-crusher) is simply a log or beam, which is drawn over the field by bullocks, and it breaks the clods, levels the ground and gathers together some of the weeds. It is also used for covering the seeds with earth after the seeds are sown, to prevent rapid evaporation of moisture.

8. (4) *Khurpi* खुड़पी (trowel) is used in weeding.

II.—WATER-LIFTS.

9. (1) *Charas* चड़स and (2) *sundia* सूंडिया are leather buckets. In *charas* चड़स, which is for a deep well, two men are necessary, one to drive

the bullocks, and the other to receive the bucket; but in *sundia* सूंडिया, which is used for wells where water level is higher, the latter's services are dispensed with, as it has a leather tube to pour out its contents. The chief parts of these lifts are—(1) *lao* लाव (a leather or flaxen rope to draw the bucket); (2) *kur* कूड़ (the pulley on which the rope slips); (3) *hathio* हथीयो and *pat* पाट or *marwa* मरवा (the oblique wooden shafts and the stone slab respectively, in which the pulley is fixed); (4) *saran* सारण (the sloping pit in which the bullocks work).

10. (3) *Arath* अरठ is the local term for the Persian Wheel. Its chief parts are—(1) *gelri* गेलड़ी (the shaft drawn by the bullock); (2) *barlo bangro* बारलो बांगड़ो (the outer or horizontal toothed-wheel which turns) (3) *maylo bangro* मायलो बांगड़ो (the inner vertical toothed-wheel). The

circular wooden frame-work round which the string of earthen buckets (4) *mal* माल is thrown, is known as (5) *dabro* डाबड़ो, while the earthen bucket is called *gharli* घड़ली.

11. (4) *Pag-paoti* पगपावटी is a miniature *arath* अरठ and, as its name implies, it is worked by feet, instead of bullocks.

12. (5) *Dhekli* ढेकली or *chanch* चांच is used where water is near at hand but scanty. It is a simple contrivance. A horizontal wooden beam, with a heavy weight tied on one end, and a small leather or earthen-bucket hanging by a string at the other, is balanced or hinged on to a vertical post. It is worked by a single man.

III.—IMPLEMENTS FOR REAPING.

13. The only implement generally used in reaping the corn, is *dantla* दांतला (the scythe).

IV.—IMPLEMENTS FOR THRASHING AND WINNOWING THE CORN.

14. There are no instruments specially adapted for this purpose in Marwar. Corn is thrashed out by making a number of bullocks tread on it. The process is called *gayta* गायटा. The corn thus crushed, is on a windy day, thrown from a *chhajla* छाजला by a man standing on a stool.

V.—MEANS OF TRANSPORT.

15. They are five in number.

(1) Cart गाड़ी.

(2) *Pothia* पोठिया (a number of bullocks with bags on their backs).

(3) *Lada* लादा (a number of donkeys with bags on their backs).

(4) *Katar* कतार of camels.

(5) Railway.

16. The first three are the ordinary means of transporting grain, fuel, &c., in those parts of Marwar which are not very sandy as the parganas of Godwar, Pali, Sojat, Jaitaran, &c., but the most usual means in the majority of the parganas is the camel. All these four means of transport have, to a certain extent, been displaced by (5)—the railway—which is not only a source of income to the State, but has proved very beneficial in the last famine, in supplying food grains.

17. There are a few miscellaneous implements which deserve mention. These are—(1) *jayee* जेई (a two-horned stick to lift brambles and make a fence of thorns); (2) *jhadbad* जाड़बड़ (a sort of axe to chop off *ber* बेर fodder; (3) *ankuro* आंकूड़ो (a curved knife attached to a long bamboo, something like a halbert, to cut the twigs of a well-grown tree);

(4) *fawro* फ़ावड़ो (a shovel), and (5) *dantali* दनताली (a rake with wooden teeth and handle, to level the earth and mix the manure with the soil).

IX.—AGRICULTURAL OPERATIONS.

IX.—AGRICULTURAL OPERATIONS.

Seasons.

1. The year has three seasons—

(1) *Unala* उनाला or the summer. It includes *Fagan, Chet, Baisakh and Jeth* (from 15th February to 15th June).

(2) *Chomasa* चोमासा or rainy season It covers *Asar, Sawan, Bhadu* and *Asoj* (from 15th June to 15th October).

(3) *Siyala* सियाला or the winter. It extends from *Katik* to *Mah* (from 15th October to 15th February).

2. The agricultural year begins from *Sawan Badi* 1st (July 7th). It is convenient to the Bohras and the cultivators to settle their accounts, as both the harvests are reaped by this time.

Breaking up and ploughing.

3. When a new land is broken up, the bushes and shrubs are cut down, and the land is roughly made level. The bushes so cut are either set fire to, or thrown on its border for fence. This process is called *soore* सूड़.

4. Ploughing is begun after the first rain. A camel or two bullocks are yoked in each plough. The bullocks turn from right to left. The first ploughingi s called *phar* फाड़, the second *chok* चौक, and the third *bijari* बीजारी.

5. For *Sawnu* सावणु crops, the land is ploughed from once to thrice. For *Unaloo* उनालू crops, it is

ploughed from five to seven times. The plough turns up the soil from $3\frac{1}{2}$ to 5 inches. A man with a pair of good bullocks, can plough light soil from 5 to 7 bighas in a day. If the soil be stiff, less area can be ploughed. The labour of the ploughman is very hard. He cannot work for many days without rest.

Harrowing.

6. After the land has been ploughed three times, it is harrowed to break the clods and to make it even. It is done only in fields having clayey soil. Its chief object is to prevent evaporation, and thus to retain the moisture.

Sowing.

7. Sowing is called *bijari* बीजारी. The seed is generally sown by a drill made of a bamboo tube, with a leather cup at the top, tied on to the plough. It is sometimes sown broadcast too, such as *til* तिल. A man can

sow with a drill, about 6 bighas in a day.

Weeding.

8. Weeding is called *ninan* निनान. Men, women and children are engaged to take out the weeds. The weeds are gathered and given to the cattle as fodder. One man can weed quarter of a bigha in a day. In some villages of the district of Nagore, weeding is performed by passing a plough, which is called *halni* हलनी. This requires great skill, else by passing over the plough, the standing crops be destroyed. This is done after the crops have come up to the knees.

Protection of crops.

9. On well lands, to keep out the cattle and wild pigs, which do much harm, fences are made and planted with thorny bushes. *Thor* थोर hedges are put up on the border of the fields.

10. Scarecrows are set up here and there, to frighten away the birds. Persons are also engaged to keep a look-out, and are provided with either slings or *thali* थाली or noisy instruments made of peacock feathers. With the sling, he throws mud-pellets at the birds. He beats the *thali* थाली with a stick, the noise of which frightens away the birds. Fire is sometimes kindled to keep off the deer during night time.

Reaping.

11. Reaping is called *doochni* डुचनी or *lavni* लावनी. Persons engaged are called *Denagiyas* देनगीया or *Badiya* बडिया, and their wages *dengi* देनगी. These persons make a bag, *jholi* झोली, of the cloth they have on their body, in which they gather the stems cut down by *dantlis* दांतली (crooked knife). When the bag is filled up, it is emptied on an appointed place in a field. It is then removed to the thrashing-

floor by means of carts. One man can reap a bigha in a day. Plants bearing ears are cut down with scythes, while those bearing pods are uprooted.

Thrashing.

12. Thrashing is called *gayta* गायटा. The thrashing-floor is called *lata* लाटा. The ground selected for the purpose is swept and plastered with cow-dung and clay, by a *Bhanbhi* भांभी of the village, and a pole called *med* मेड is set up in the middle of each heap of grain. The straw with ears is spread out round the pole. The bullocks are tied up in a row and driven round the pole, treading out grain. Their collective name is called *dawan* दावन. When the grain is separated from the straw, it is taken away and stored in a separate place. The straw, after the grain has been separated, is called *doonkla* डुंकला or *bhunbhla* भूंभला.

Winnowing.

13. Winnowing is called *uphanna* उफ़ानना. It depends wholly upon winds. When the wind is high, the mixed grain and the chaff are taken in a *chhaj* छाज, and shaken slowly from some height. The grain being heavier falls straight to the ground, while the chaff of wheat and barley, which is used as a supplementary fodder, is blown off to a little distance. The chaff of *bajri* बाजरी and *jawar* जवार is not much taken care of.

Sharing.

14. Then the grain is collected on a spot, divided amongst the sharers, and carried to their homes by carts.

X.—AGRICULTURAL STAPLES.

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1. Products may be—

   (1) Food crops.—Wheat, barley, *mukki* मक्की, gram, *bajri* बाजरी, *jawar* जवार and *moong.* मूंग.

   (2) Oil-seed.—*Til* तिल and rape in *sewaj* सेवज fields.

   (3) Fodder crops.—*Leala* लीला (*jawar* जवार and *bajri* बाजरी) grown as green fodder by irrigation in the months of *Baisakh* वैसाख and *Jeth* जेठ, *gawar* गवार and *moth* मोठ.

   (4) Fibrous.—Cotton.

   (5) Narcotic.—Tobacco.

FOOD CROPS.

2. *Wet.*

3. Wheat is the chief *unaloo* उनालू crop. It is of two kinds—

Wheat.

(1) The *peal* पिअल.

(2) The *sewaj* सेवज.

4. The *peal* पिअल is grown on well lands, and as it is irrigated, it is called *peal* पिअल. It is of two kinds—

(1) The *kharchiya* खारचिया.

(2) The *mithaniya* मिटानिया.

If irrigated by saline water, it is called *kharchiya* खारचिया; if by sweet, it is called *mithaniya* मिठानिया. The former is considered the best, and fetches a higher price.

5. The *sewaj* सेवज is grown on lands flooded with rain waters during a rainy season. It is called *katha*

काठा. It is much used in making a *lapsi* लपसी or *thooli* थूली.

6. Wheat is generally grown on clayey soil. It is sown with a drill, or sometimes broadcast too in the bed of a *talao* तलाव or a big *bundh* बंध.

7. The soil is worked up during the rainy season. The ground is generally ploughed from 5 to 8 times. The fields producing wheat are furnished with banks called *pals* पाल or *dhoras* धोरा, which do not allow the the rain waters to flow off.

8. The quantity of seed sown, ranges from 12 seers to 20 seers per bigha. It is watered, 20 to 30 days after sowing. In some places, one watering is given before the seed is sown. It requires from 4 to 5 waterings before it ripens. It takes full six months to ripen. It is cut down by scythes called *dantlis* दांतली, and collected into bundles,

called *poolies* पूली. The green ears are called *holas* होला when roasted, and are eaten with a relish. The straw, when separated from the grain, is called *khakla* खाखला, and is used as a supplementary fodder.

9. The principal diseases to which the wheat is subject, are *roli* रोली, *pilio* पीलियो and *gundiyo* गुंदीयो.

10. In the month of *Fagan* फागण, when it is about to ripen, if the rain falls and the weather remains cloudy, these diseases are sure to attack it. Frost, called *dawa* दावा, also does great harm.

11. *Gundiyo* गुंदियो is a kind of small insect which appears under its leaves, from which it finds its way into the stem which turns red. In this stage, it is called *roli* रोली.

12. *Pilio* पिलीयो is a disease in which the stem turns red.

13. Its mode of cultivation is very much the same as that of wheat, except that it does not require so rich a soil as wheat. It is watered by sweet wells. It is sometimes sown, 15 or 20 days later on. It ripens by the same time.

Barley.

14. Its straw, when separated from the grain, is also called *khakla* खाखला, and is used as a supplementary fodder. It is subject to the same diseases as wheat is. Pigs do less damage to its crops.

15. The ground is ploughed up only twice, and the seed is sown by a drill. It is sown in the beginning of *Asar* असाढ़. Five seers of seed are sown per bigha, and its average yield is two maunds. When it is raw, it is roasted on fire and eaten with a relish. Its flour is much used by the cultivators. Its cobs are called *makia*

Mukki मक्की.

मकिया and bone *dundia* डुंडिया. It ripens in 60 days.

16. *Dry.*—

Bajri बाजरी.

17. *Bajri* बाजरी is the chief *sawnu* crop of all the sandy parts of this country. It is sown by a drill as soon as the first rain falls. The quantity of seed sown varies from a quarter of a seer to three-quarters. Its average yield is two maunds per bigha. It ripens in 60 days.

18. The land is ploughed only once or twice, and the crop requires one or two weedings. The stalks are called *dokas* डोका. They were not generally used as fodder, but were mostly used for roofing purposes. But frequent fodder famines have taught the people their value, and they are now carefully cut and stacked against a drought.

19. The ears, called *sitta* सिट्टा or *phoonk* फूंक, are roasted and eaten.

Bajri flour is mostly used by the people. It is nourishing. In the winter season, its *khichra* खीचड़ा is used.

Bajri ka sogra, mothan ki dal,
Akre ki jhopri, phogan ki bar,
Dekhi Raja Man Singh thari Marwar.

बाजरी का सोगरा मोठन की दाल,
आकड़े की झोंपरी फोगन की बाड़,
देखी राजा मानसिंघ थारी मारवाड़.

"Bread of *bajri* flour and *dal* of *moth*, huts of *akra* with fences of *fog*, O! Raja Man Singh! Such is your Marwar."

Jawar जवार.

20. On better soils, *jawar* जवार, takes the place of *bajri* बाजरी as the main *sawnu* crop. Its cultivation is the same as that of *bajri* बाजरी. It is sown some 15 days after *bajri*, and the seed sown amounts to two seers a bigha. It suffers from an insect called

kangiya कांगिया in the bud called *phunkia* फुंकिया. The insect (white maggot) also eats the stalk which then turns red without, and hollow within. *Jawar* is said to exhaust the soil more than other crops. Its flour is mostly used by the cultivators. Its stalks make a most nourishing fodder. When green, they have some sweet juice and are chewed and sucked like the sugar-cane. When it is sown for fodder only, it is called *cheepta* चोपटा. When grain is obtained, its stalks are called *karab* कड़ब. It takes from 80 to 90 days in ripening.

Moong मूग.

21. Its mode of cultivation is the same as that of *moth* मोठ, but is grown on better soils. It is used as *dal* दाल, generally by higher classes.

Gram.

22. The land is ploughed four times before sowing. After the seed is sown, it is harrowed to prevent

evaporation, and thus to retain the moisture. It is grown on a light loam, and is not irrigated. No weeding is required. If good rain falls in the months of *Pos* पोस and *Mah* माह, called *mahawata* मावटा, a fine crop is almost certain; when it is ripe, the plants are taken out from the roots by hand, and allowed to dry. The pods are separated and trodden out. Frost does a great deal of damage. Lightning also does great harm, when in blossoms.

23. The grain is split and used as *dal* दाल. The young plant is used as vegetable called *pansi* पानसौ. The green grain, called *gegra* गेगरा, is also used as vegetable. It is also roasted on fire, and much used by the people. Its grain, after it is dried and ground, is used as *dana* दाणा for horses. It is grown in *sewaj* fields only and is not irrigated.

OIL-SEEDS.

24. *Dry.*—

Til तिल.

25. The land is ploughed three times. The seed is sown broadcast. It is sown mostly on clayey soil, which must be new to reap a good harvest. From two to four *chhataanks* छटांक of seed are sown per bigha. When the plants are cut, they are put up erect to dry. As they dry, the pods crack, and the seed is then shaken out. The seed is sold. Its oil is extracted, and the refuse, called oil-cakes, is given to cattle. The oil is good for burning purposes and is the best of all oils for purposes of kitchen. It ripens in 60 days.

Rape.

26. It is sown mostly on lands flooded with rain waters, or irrigated by *bundhs.* It is sown broadcast. About half a seer goes to a bigha. Its

yield is from two to three maunds. It ripens in five months. Its oil is extracted, which is bitter. It is called *karwa tel* कड़वा तेल. A considerable quantity of *sursoon* सरसुं seed is exported chiefly towards Bombay. The young leaves are used as *sag* साग, called *gandals* गांदल.

FODDER CROPS.

27. *Wet.*—

Jawar जवार and Bajri बाजरी.

28. *Jawar* जवार and *bajri* बाजरी when sown on wet lands, in the beginning or towards the end of *Baisakh*, as fodder for cattle, are called *leela* लीला.

29. *Dry.*—

Moth मोठ.

30. It is sown on light or sandy soil. It is generally sown intermixed with *bajri* बाजरी and *jawar* जवार. It

will not grow on stiff soil. It is ground and used as *dal* दाल.

31. The whole plant is collected separately from the *bajri* बाजरी, and its leaves are preserved as carefully as the grain, because they form a valuable fodder, and command a good price. It is very nourishing. Its leaves are called *pan* पान, and when mixed with beans having grain, are called *kurad* कुरड. Its straw is called *guna* गुना. All of these are used as fodder.

Gawar गवार

32. It is first wetted, and then sown by a drill. One and a-half seer of seed is sown per bigha. It is sown for cattle only. Its beans, when raw, are used as a vegetable. It ripens in 50 days.

33. *Wet*—

Fibrous cotton.

34. The ground is ploughed only three times, and requires manure in considerable quantity. The seed is sown with a drill. The seeds are rubbed in cow-dung and ashes, to separate the individual seed. Five seers of seed go to a bigha. It is sown towards the end of *Jeth* जेठ or in the beginning of *Asar* असाढ़. If there are heavy rains, it does not require to be irrigated by the end of *Asoj* आसोज, but if scanty rain falls, water is given. It begins to bear pods by the end of *Bhadu* भादु. Pods are gleaned three times in the season. It suffers much, if rain falls in *Katik* कातिक. In some villages, it is grown on unirrigated land, when rain is copious.

Narcotic.

35. *Tobacco.*—It is generally grown on *kheras* खेड़ा (homestead) by Baories or other low castes. As a number of

small insects gathers on its leaves and dies of its smell, it is for this very reason that the Jats and others of the agricultural classes do not undertake its cultivation.

Rotation.

36. When a virgin soil is broken up, it is sown in the first year either with *til* तिल, *moth* मोठ or *gawar* गवार; in the second year with *bajri* बाजरी and *jawar* जवार; in the third *jawar* जवार; in the fourth *bajri* बाजरी and *moth* मोठ mixed. In some places, the ground is used successively for three years, and in some four years; and then it is allowed to lie fallow for two years at least, if not more.

XI.—SETTLEMENT WORK.

XI.—SETTLEMENT WORK.

1. There are four stages in Settlement work—

- (1) Demarcation of village boundary.
- (2) Survey.
- (3) Preparation of Record of Rights.
- (4) Assessment.

Demarcation of Village Boundary.

2. First of all the village boundary is demarcated. It is done in three ways—

1st.—*Razamandi* रज़ामंदी, *i.e.*, amicable settlement.

2nd.—*Panchayat* पंचायत, *i.e.*, arbitration agreed to with mutual consent.

3rd—*Tajwiz* तजवीज़, *i.e.*, merits.

3. In Marwar, land disputes constantly occurred between *Jagirdars*, which often resulted in blood-shed. To provide against this, the Settlement work was commenced, and the services of Colonel Loch entertained; 2,197 disputes were settled during his incumbency, of which 463 were disposed of on merits, 1,414 by *panchayat* पंचायत, and 320 by *razinama* राज़ीनामा. It shows what valuable work he has done.

SURVEY.

Maps.

4. After the village boundary has been defined, village maps are prepared. They are of two kinds—

(1) *Hadbast* हद्बस्त.

(2) *Kishtwar* किश्तवार.

5. In *hadbast* हद्बस्त, the village site, roads, hills, streams, *nadis* नाडी, its boundaries and other natural objects are shown. The jagir villages, 3,589 in number, are thus surveyed.

6. *Kishtwar* किश्तवार (field-by-field) survey. It is worked out on two systems, *viz* :—

(1) *Chandabandi* चांदावंदी.
(2) *Murabbabandi* मुरब्बावंदी.

7. *Chandabandi* चांदावंदी : dividing the village area into triangles having sides unequal and of convenient length. It is suited for a rough country.

8. *Murabbabandi* मुरब्बावंदी : dividing the village area into squares having one of its sides, 200 *guttas* गट्टा or 1,320 feet long. It is suited for a flat country.

9. In *kishtwar* किश्तवार, the village area is classified, and marked out in blocks. A field is measured by passing the chain all around, and its figure with scale drawn on the paper. Then the measurement of the adjacent field is taken up, and so on till the whole

area is surveyed field-by-field. It has been made in the *Khalsa* खालसा villages only. Their number is 636.

10. The following are the important papers prepared :—

(*a*) *Shijra kishtwar* शिजरा किश्तवार or field map.

(*b*) *Khasra* खसरा or field register.

(*c*) *Khatoni* खतोनी or holding slip.

11. *Shijra kishtwar* शिजरा किश्तवार, field map. In this, the dimension in measured scale, and the contour of every field are shown.

12. *Khasra* खसरा, *i.e.*, field register. In this, the name of the owner, the cultivator, the area, kind of soil and the crops sown in every field, are noted.

13. *Khatoni* खतोनी, *i.e.*, holding slip. In this, the cultivator's area duly classified with the number of the field, is put down.

RECORD OF RIGHTS.

14. When the survey has been finished, *tasdik* तसदीक, attestation of individual rights, is taken up. Its result is embodied in (*i*), (*ii*) and (*iii*).

15. (*i*) *Khewat* खेवट.—It is prepared in the Sadar office from the *khasra* खसरा and *khatoni* खतोनी. The area is arranged in order of ownership duly classified, giving the names of sub-tenants. First, those holdings are entered, which pay revenue at ordinary rates, then those which pay favoured rates, and last come the *Muafidars* माफ़ीदार, who hold land "rent-free" or at a "quit-rent."

16. (*ii*) Well statement.—It briefly describes the quality of water, its depth, construction of the well and the name of the sharer.

17. (*iii*) Village note-book.—A general note describing briefly the

condition of the people, cattle, and such other noteworthy features of the village.

ASSESSMENT.

18. It is a business that requires great care, thought and attention. Its greatest recommendation is, that it must be bordering on leniency. The gradation list of wells and soils is prepared in 16-anna notation system, by conducting local enquiries. It forms a sound and reliable basis for the distribution of demand.

19. Villages having similar soils and advantages, are grouped in a circle. For each circle, rates are fixed. Where the seasons are insecure, rates fluctuate.

20. In proposing rates, the assessing officer has to give due consideration to—

(*a*) Quality of the soil and the value of its produce.

(*b*) Mode of irrigation.

(*c*) Condition of the cultivator.

(*d*) Condition of the village.

(*e*) Previous assessment and how it was paid, whether with ease or hardship.

(*f*) Nearness to mart.

XII.—METHOD OF LAND REVENUE COLLECTION.

XII.—METHOD OF LAND REVENUE COLLECTION.

1. In Marwar, the collection of land revenue was made—

   (1) In kind.

   (2) In cash.

2. Under the first class, are the following:—

   (1) *Batai* बटाई under which come—

      (*a*) *Lata* लाटा. The Raj received a certain share of the actual yield. The crop was guarded, till brought and thrashed out in the barn. Dividing actual grain on the thrashing floor, is known as *lata* लाटा.

The Raj share varied from $\frac{1}{10}$ to $\frac{1}{2}$ of the grain plus many *lags* लाग (cesses). It is greater on dry crops, because (1) such crops yield better and more valuable fodder, which is not shared; so to make good the loss, the Raj share on grain is higher; (2) the cost of dry cultivation is cheaper.

Under this system the ryot has, in principle, to pay a part of what he gets, but in practice, serious abuses creep in, and so the system is losing ground.

(*b*) *Kunta* कंूता. It is a modification of *lata* लाटा. It is a probable estimate of the standing crop. From this estimated gross yield, the

Raj share is counted and turned into cash, by applying current prices.

(2) *Gugri* गुगरी. It is either a fixed quantity of grain per well, or per field, or a quantity equal in amount to the seed sown. The latter is known as *bij-gugri* बीज गुगरी.

3. Under class (2) are—

(*a*) *Mukata* मुकाता. It is a light fixed cash demand on a well land or a dry field.

(*b*) *Dori* डोरी It is a crop-rate in cash. It is levied on cotton, vegetables, sugar-cane, tobacco and also *makki* मक्की (maize or Indian corn). It is almost impossible to bring these crops under the *Batai* बटाई system, for (1) the crops do not ripen all at once, and are cut or picked, as the fruit ripens; (2) the *Batai* बटाई process is too long, and there is the danger for such crops as vegetables, sugar-cane, &c., to get spoilt. Hence these crops are annually measured with a *dori* डोरी (string) and cash-rates charged.

(*c*) *Dumba* डूमबा. *Dumba* is a fixed Raj demand for a village, or a part of a village. It never changes, and is permanent.

4. Colonel Loch, as a step towards regular assessment, stopped *Batai* बटाई, and fixed a yearly amount for every village.

5. After the field survey and the Records of Rights were completed, rates were fixed. In arriving at the rates, villagers were freely consulted.

Wells are graded, 16 annas being the highest class, and so is the dry land. Rates range accordingly.

6. The *Chowdries* and the village *Patwaris* collect the Raj dues according to the *fard bach* फ़र्द बाछ, prepared by the *Hawaldar* who, after inspecting the kutcha receipt given by the *Patwari*, gives a pucca receipt instead. The amount thus collected, is remitted with the *Chowdries* and *Bhomias* to the Pargana Town Customs Treasury, to be credited to the Revenue Department. The head office at Jodhpur is kept informed, through the *Darogah*, of the remittances and the village *jamas*.

7. The tenure in Marwar is a *rayiatwari*. The Raj deals direct with the cultivator. He is only responsible for his own holdings.

8. Marwar is a vast country. Certain parganas are safe, and others not so, *i.e.*, are subject to famine and

scarcity. Villages lying under the Aravallis, or situated on rain-rivers, of which the Luni is the chief, are less dependent on rains than others. They have subsoil water to supply wells for irrigation. In secure parganas, the rates are fixed, liable to remissions in an exceptionally bad year. In insecure parganas, the rates are always subject to remissions, when the year is below the average.

9. Remissions are to be liberal and timely. Even if they be too liberal, the Raj loses nothing, because what remains with the *ryot*, is a sort of investment which bears fruit in due course.

10. The term of the present Settlement is fixed for 10 years, as it is the first of its kind. Moreover it leaves room for correcting mistakes, if any.

XIII.—MAINTENANCE OF RECORD.

XIII.—MAINTENANCE OF RECORD.

1. It branches off under two heads—

(1) Machinery employed.

(2) Papers prepared annually.

Circle.

2. A certain number of villages is placed in a circle. For every circle, there is a *Hawaldar* or a *Naib*. He has to keep his diary. In it, he notes important occurrences. He also prepares revenue papers. His work is supervised by an Inspector. For every six *Hawaldars*, there is one Inspector. Further supervision is kept by a *Darogah*. For every three or four Inspectors, there is a *Darogah*. A

Diary.

Supervision.

Revenue Officer styled 'Assistant Superintendent,' keeps general supervision over two or three *Darogahs.*

Trained officials.

3. All of these officials, from the *Naib-Hawaldar* upwards, are trained in Survey and Settlement work.

PAPERS.

(1) Khasra girdawari खसरा गिरदावरी.

4. The chief papers prepared annually are—(1) *khasra girdawari* खसरा गिरदावरी. It is a crop register for five years.

Girdawari गिरदावरी.

5. Inspection of crop, field by field, is the mainstay of the new system. It is called *girdawari* गिरदावरी, and is done twice a year; once in September for *Sawnu* सावणु crops, and again in March for *Unalu* उनालु crops. Its objects are—

(*a*) To get an accurate account of the harvest.

(*b*) To know the changes of rights and possession which have occurred.

(*c*) To make the necessary corrections in the Field Map.

6. The crop is inspected, field by field, by the *Hawaldar* or his *Naib*, before it is cut and gathered. The damages, if any, are noted in the remarks column in annas. If there are more than one crop in a field, the area under each crop is separately shown; the state of boundary pillars, wells at work or fallen in disuse, new wells, fresh cultivation, death of a *Maufidar* are taken note of.

(2) Supplement to Shijra and Khasra, तितम्मा शिजरा व खसरा.

7. *Tittamma shijra* तितम्मा शिजरा and *Tittamma khasra* तितम्मा खसरा are supplements to Field Maps and Field Register. If any changes are made in the contour of the field, owing to a partition or by some other

cause, they are noted therein, and a separate map of the field prepared, with it a Field Register giving the cultivator's name, dimensions, area, class of soil and the crop cultivated in the newly sketched field.

(3) Jinswar जिंसवार.

8. Then a crop return called *Jinswar* जिंसवार is prepared. It shows the area under each crop and the extent of damage, if any.

(4) Melan rakba मीलान रकवा.

9. *Melanrakba* मीलान रकबा. It compares the area duly classified with that of the previous year and shows the changes in the cultivated area. It is prepared with a view to see, if the area has undergone any change for the better or the worse. It is a statement for the village as a whole.

(5) Wasul-baki वसूल बाकी.

10. *Wasul-baki* वसूल-बाकी. It shows what has been and what remains to be realized.

(6) Rain Register.

11. Rain Register. It is a record of the rainfall. In it, inches and cents are noted down; 100 cents=1 inch, and a fall of 1 inch wets light soil 14 *ângles* आंगल deep.

(7) Adla badliri bahi अदला बदली री बही.

12. From the information gathered at the crop inspection, the Mutation Register is prepared to give effect to the changes in rights in the *Jamabandi* जमाबंदी of the current year. The Mutation Register gives the details of last year's entry, well as the new entry. Order is recorded thereon for enforcing changes in rights.

(8) Fard bachh फर्द बाछ.

13. For realizing the Raj demand, two instalments are fixed, and for each instalment, the *Fard bachh* फ़र्द बाछ showing the demand due from each cultivator together with the cesses is prepared. It is given to

the *Chowdries* for realizations. The dates of *Sawnu* सावणु and *Unalu* उनालु instalments are *Mah Sudh Punam* माह सुदि पूनम and *Jeth Sudh Punam* जैठ सुदि पूनम respectively.

14. *Jamabandi* जमाबंदी is the most important paper. In this are recorded the rights and the names of the right-holders and cultivators brought up to date, as also the number of fields, the area duly classified, the rent realized and the arrears, if any.

(9) Jamabandi जमाबँदी.

15. With it, a statement is filed showing the number and name of persons deserving remission or suspension, and on it final orders are to be issued by the proper authority.

XIV.—FAMINE.

XIV.—FAMINE.

Kinds of famine. 1. Famine may be—

(1) *Un-kal* अनकाल (grain famine).

(2) *Jal-kal* जलकाल (drought).

(3) *Tin-kal* तीनकाल (fodder famine),

(4) *Tri-kal* त्रीकाल (in which there is a scarcity of these three combined).

Causes. 2. The principal causes which bring on famine are—

(1) Failure, or untimely and unequal distribution of rains.

(2) Excessive rains.

(3) Damage done to crop by locusts, caterpillars and blight.

General character of the country.

3. From a famine point of view Marwar can be divided into two groups—

(1) Secure ... Group A.

(2) Insecure
- Group B — Most liable to famine.
- Group C—Liable to famine.

4. Under (1) come the parganas bordering the Aravallis and the portions of land enclosed within the feeders of the Luni, the chief river of Marwar, which are comparatively rich. They yield two crops, *viz.*, the *Sawnu* सांवणु and the *Unalu* उनाल़ु in a normal year. They are not so much dependent on rains as the western portion of the country.

5. There is a good number of wells. They can produce wet crops which, if rains fail entirely, can sustain the people.

Group A.

6. This tract comprises Jaswantpura, Jalore, Pali, Godwar, Sojat and Jaitaran. Here *tin-kal* तीनकाल is the only calamity.

7. Under (2) falls the rest of Marwar. It is mostly a sandy tract, wholly dependent on rains, and therefore liable to scarcity or famine.

8. Even this sandy region can be sub-divided into two groups—

Group B—Most liable to famine.

Group C—Liable to famine.

Group B.

9. Group B. consists of Sheo, Sankra, Phalodi, Malani, Shergarh, Pachbhadra, Siwana and Sachore.

Aggravating causes.

10. The causes which aggravate its famine tendency are—

(1) Absence of forests.

(2) Its peculiar position not favouring the approach of either of the monsoons.

(3) The depth of water from the surface exceeds the practical limit of well irrigation.

(4) Absence of any perennial river.

11. Under Group C. are the parganas which hold an intermediate position between A. and B.

Group C.

12. They are Jodhpur, Nagore, Didwana, Parbatsar, Marote, Nawa, Merta and Bilara.

Needs of the people.

13. The needs of the people in such a trying time are—

(1) Water.

(2) Food { for people, food-grain. for cattle, fodder.

14. To remove the want of water is more in the hands of nature and so is that of fodder, as it cannot be imported in a large and sufficient quantity to support the cattle.

15. So, emigration of the cattle-owners with their cattle, as a matter of necessity, sets in during the hard times and cannot be practically prevented.

Measures to be adopted.

16. Means of communication to bring in food-grains to the affected area are to be well taken care of. The Railway is a saviour in hard times. Its value has been established by the experience of the last famine.

17. To procure food, money is required. By providing labour, honest means for getting capital to purchase food, is supplied; so relief works are started to provide labour to the affected people.

Division of the affected population.

18. The population affected can be divided into (1) able-bodied; (2) disabled or infirm.

19. For class (1), relief works are opened, and to (2) gratuitous relief is given.

Nature of Relief work.

20. Essential features of the relief work should be—

(1) It must be a work of public utility.

(2) Within or very near the affected area.

(3) Chiefly furnishing unskilled labour.

21. In Marwar such works are—

(1) The digging and clearing of tanks.

(2) Digging wells.

(3) Construction of canals and kutcha *bundh.*

22. It is often seen that the people so affected are more liable to fall victims to an epidemic. To give them medical relief, temporary hospitals are to be opened.

Medical Relief.

23. Relief to agriculturists should be given by granting timely and liberal remissions and advances to purchase food-grain or to sink wells.

Remission to agriculturists.

24. To prepare ourselves to meet the emergency, a programme of relief works to be opened, giving the number of labourers, and the time for which they can be employed, is drawn up beforehand to avoid confusion at a time when its pinch is felt.

Preparation of programme.

25. In Marwar, the years of famine during the last century have been—

Year.				Nature.
Sambat	1869	A.D.	1812-13 ..	*Tri-kal* त्रीकाल (Treble famine).
„	1890	„	1833-34 ..	*Tin-kal* तीनकाल (Scarcity of grass).
„	1894-95	„	1837-38 ..	*Un-kal* अनकाल (Grain famine).
„	1905	„	1848-49 ..	*Tri-kal* त्रीकाल (Treble famine).
„	1907	„	1850-51 ..	*Un-kal* अनकाल (Grain famine).
„	1910	„	1853-54 ..	*Un-kal* अनकाल (Grain famine).
„	1925	„	1868 ..	*Tri-kal* त्रीकाल Treble famine.
„	1926	„	1869 ..	*Un-kal* अनकाल (Grain famine).
„	1934	„	1877-78 ..	*Tri-kal* त्रीकाल (Treble famine).
„	1944	„	1887 ..	*Jal-kal* जलकाल (Water scarcity).
„	1948	„	1891-92 ..	*Tri-kal* त्रीकाल (Treble famine.)

XV.—AGRICULTURAL INDEBTEDNESS.

XV.—AGRICULTURAL INDEBTEDNESS.

1. The *Karsas* करसा of Marwar are not without debt. The *Bohra* बोहरा is a necessity. He has his virtues and vices. His black side is depicted to exaggeration in the following Marwari couplet :—

Hit men, chit men, hath men, khat
men, mat men khot.

Dil men darsawe daya, pâp liyan sir
pot.

हित मे, चित में, हाथ में, खत में, मत मे, खोट,

दिल मे दरसावे दया, पाप लीयां सरपोट.

"His friendship, his mind, his dealings, his bonds, his principles are all full of deceit. He pretends to be merciful, but is a great sinner."

2. Once he catches a farmer in his trap, and there is hardly any chance for the *ryot* to get out.

3. His existence is valuable, as he supplies capital to the *ryot* in time of need. Debt is a bad thing; there is a proverb about it.—

Leno bhalo na bap ko sahib rakhe tek.

लेणो भलो न बाप को साहेब राखे टेक.

"To owe debt even to one's father is a highly undesirable thing. May God save us!"

4. In thinking of indebtedness, three questions deserve attention—

(1) How debt is incurred.

(2) How it swells.

(3) What are the remedies—

(*a*) to avoid debt;

(*b*) to check its swelling.

5. The causes which give rise to indebtedness are—

- (1) In the power of *Karsa* करसा.
  - (*a*) Extravagance.
  - (*b*) Ignorance and imprudence.
- (2) Beyond the power of *Karsa* करसा
  - (*a*) Revenue system.
    - (α) Heavy assessment.
    - (β) Rigid mode of collection.
    - (λ) Fixing time less suitable to the *Karsa* for paying revenue.
  - (*b*) Unproductive soil.
  - (*c*) Increase of population.

6. The causes which swell it are—

- (1) Litigation.
- (2) Ease of borrowing.
- (3) Interest.

7. The main heads of extravagance are—

- (1) *Niyat* न्यात or caste feasts.
- (2) Marriage.

(3) *Mosar* मोसर (feasts and other expenses after death).

8. The Raj, as the *mabap* माबाप of the people, has come forward to stop caste feasts. The Walter Krit Sabha and other caste Sabhas which follow in its wake, are doing their best to remove causes under (2) and (3).

9. Better education would teach them thrift. Experimental Farms may be opened to teach the cultivators how to improve the agriculture. Better seed-grain may be supplied.

The rates may be light.

10. In famines, liberal, proper and timely remissions may be granted.

11. The amount should be realized at times suited to the convenience of the *ryot*.

12. In settling the account of the *Bohra* बोहरा, the noble principle set

forth in the following pithy couplet is always to be borne in mind :—

Pahlé pét né pàchhé seth
Pahlé Raj nè pàchhé biáj.
पेहले पेटने पच्छे सेठ,
पेहले राजने पच्छे व्याज.

" From a *ryot's* earning, his living is first to be provided for, and then the claims of the *Bohra* बोह्रा ; but in doing so, the Raj demand is first to be met with, and then the interest."

13. To improve the soil—

(1) Big *bundhs* बंध may be constructed.

(2) The sinking of wells may be encouraged.

(3) The forests may be conserved to attract greater rainfall.

(4) Good manure may be used.

Railways may be opened to secure easy market for the produce.

14. Increase of population brings about poverty, as copious rains damage the crop, as the proverb says :

Ghan jáyán kul hân
Ghan buthàn kan hân.

घण जायां कूल हाण,
घण बुठा कण हाण.

But such is not the case in Marwar, as it is thinly populated.

15. The bad consequences of a law-suit are—

Dhan chhije, chhije dharam, pari jae partit,
Jutha nar jhagre jika pura hoe phajit.
Pretham dham chhute paro, nijteh chhute neh.
Jhuta jhaghra jhalian dukhi rahe nit deh.

धन छीजे, छीजे धरम, परो जाय परतीत,
जूठा नर ज़घडे. जीका पुरा होय फजीत,
प्रीथम धाम छूटे परो, नीजते छूटे नेह,
जुठा झघडा झलीया दूखो रहै नित देह.

16. "Lawsuit causes loss of religion, wealth and friendship. The suitor has to quit his home and dear relations, and always remains sick at heart."

17. The remedy would be to form courts of conciliation, consisting of the Revenue staff, *Chowdries* and other leading men of the village. The parties generally are glad to accept any reasonable compromise which saves them the trouble and expense of a regular lawsuit.

18. Cheap and easy credit is always abused by unthrifty and ignorant *Karsas* कारसा. They should be taught thrift by forming co-operative societies.

19. Interest should not exceed the amount of the capital as the Law of *Dam Dupat* दामदुपट enjoins. *Dam Dugna, Dhan Tigna* दाम दुगना धान तीँगना, is also a current proverb, there being a higher obligation in supplying grain as it sustains life.

20. The instalments should be easy and timed to meet with the convenience of the *ryot.*

21. The debt swells—

(1) By the rate of interest. A legal limit may be put to it.

(2) By the mode of calculating it. The compound interest may be disallowed.

22. With us, there is a very healthy rule by which the *ryot* cannot be ejected from his holding. The utmost the *Bohra* can do, is to take the standing crops ; but in such a case, he is to provide for the seed-grain and the maintenance of the *ryot.*

PART II.

MY PALI TOUR DIARY.

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JODHPUR TO BITHU.

JODHPUR TO BITHU.

9th October, 1896.

Left Jodhpur by what people here (L. 14, para. 16.) call *dhoona-gari* धुंआं गाड़ी (cart emitting smoke) at 2 P.M. The fields on both sides of the line at (L. 10, paras. 16, 17, 18, 19.) irregular intervals, showed that the *bajri* crop was reaped and stacked. Its out-turn seemed pretty (L 10, paras. 24 & 25.) fair. *Til* and *moth* are (L. 10, paras. 29 & 30.) still standing. Early sown *til* are in good condition. The later sowings have altogether failed. The train steamed in at 3 P.M. at Luni Junction. We alighted and went in the camp to dress ourselves. Our horses were ready. We started at 4 P.M., and rode along the Railway line. The first thing that we came across, was the Luni, the chief river of Marwar. There was no water in it. As we crossed its bed, a red flag attracted our attention. It marked the commencement of the *Khalsa* land. From here began the limits of Dhandhiya, a *Khalsa* village. The soil we first stepped in, was a *jao* of a *kharchiya* well named Kharda. It is manured with *mingni* and ploughed for the spring crop. It yields one crop of wheat in two years. The adjoining land was of a similar quality. The wells are all situated along the banks of the Luni and are worked either by *sundias* or by *chanch*. There are altogether 27 wells. All are not worked every year for want of cultivators.

(L. 2, para. 12.)

(L. 3, para. 8.)

(L. 4, paras. 1, 2, 3.)

(L. 10, paras. 7 & 13.)

(L. 8, paras. 9 & 12)

The villagers showed us a well which they have dug recently, and in which drinkable water has been tapped. Their request for Rs. 200 to make it pucca was registered.

We passed through the village. It is a mile from the Railway Station. It has 45 houses.

The cultivated area is—

		Bigahs.
(L. 2, para, 12.)	*Chahi* ..	2,546
(L. 2, para. 3.)	*Matiyali Sewaj* ..	260
(L. 2, para, 4.)	*Matiyali Barani* ..	127
(L. 2, para, 5.)	*Bhuri Barani* ..	2,537

Cattle are in good condition. We successively passed through *baras*,—enclosures for sheep and goats,—heaps of *mingni* manure, and *karais* of fodder.

Left Dhandhiya at 4-30 P.M. Our road passed by *doli* and *Khalsa* fields, in some of which *til* was standing and in some, *bajri* crop had been raised and reaped. The rest was covered with grass. The soil was

Matiyali and *Bhuri*. The *bajri* cro was good and the *til* pretty fair *Matiyali* produces (L.10, paras. 22 & 23) *Sewaj* crop of *gram*. Passed Doongerpur on our way to Singari. Entered the Singari limits, marked by a red flag. There was little *Barani* cultivation near the road on this side of the village. Singari is situated about half a mile from the Rohat Station. The total number of houses is 36. Then we inspected the Nimariya and Chodi wells. (L. 3, para. 16.) They belong to the *Riya* class. All are situated on the banks of the Guya Bala. The water is saline. They produce one wheat crop in two years.

There are 24 wells, but only 13 or 14 are worked regularly. The total cultivated area is—

Chahi ...	... 1,555	bighas.
Matiyali ...	... 329	„
Bhuri ...	... 1,610	„

We then crossed the Guya. We passed through fields of *til*, *jawar* and *bajri*. (L. 10 para. 20,) The soil here was *Matiyali* and *Bhuri*. *Bajri* was cut. The out-turn was good. *Til* was pretty fair. As we approached Bithu, a *Khalsa* village five and a half *kos* from Chawan, the soil to our left was *Matiyali* which was partly covered with grass and had a splendid crop of *til* in fields. It produces *Sewaj* crops of gram and wheat in good years; while the land to our right was flat and covered with grass. We reached the village at 6-25 P.M. There is a decent *talao*. The village is well populated. It has 113 houses, of which 25 houses belong to Patels who are pure agriculturists.

We then inspected Badi and Bhadarwa wells. On the *jaos*, *bajri* crop was raised and reaped. Other *jaos* were prepared for spring crops. There are eleven wells. They skirt the bank of the *talao*. Their water is sweet and its supply depends on the water of the *talao*. Cotton, *bajri* and wheat are produced.

(L. 10, para. 34.)

In the *agore* (catchment area) of the *talao* there is a large *oran* well wooded with *babul* trees and dedicated to Shiva. The *oran* is very useful. It can serve many purposes.

(1) It supplies good pasture and shelter to the cattle, fuel and timber to the villagers, funds to repair and dig the *talao*, and maintain the temple.

The total cultivated area is—

Chahi ...	... 194	bighas.
Kali Sewaj	... 572	„
Matiyali Sewaj	... 1,569	„
Bhuri Sewaj	... 165	„
Bhuri Barani	... 9,347	„

(L. 8, para. 5.)

Cattle	451
Ploughs	59

In the evening the *jama* of each well and the rates of the dry land were announced to the *Chowdries* and *Patwaris* of Dhandhiya, Singari and Bithu. They willingly accepted the rates.

BITHU TO PALI.

BITHU TO PALI.

10th October, 1896.

Left Bithu at 6 A.M for Bhandai, a *Khalsa* village. Passed through the *oran*. Just outside its limits, *Barani* crop was splendid, a fact showing the worth of a well-wooded vicinity. Here we passed through several blocks of *Matiyali Sewaj* soil. Some of them had *jawar* and *til*. Further on we came across the *Bhuri* soil. It had *bajri* crop, its out-turn being good. It was reaped and stacked. The storage in the village seemed sufficient. We then passed through a strip to *Matiyali* land of a *jagir* village, named Chotelao. It had a luxuriant crop of *jawar*. The way lay through land thickly studded with *jal.* Then we entered (L. 7, para. 10.) the land of *Khalsa* village Bhandai. The first thing that drew our notice was a *nadi.* It holds water for nearly six months. On the right, were *Barani* fields of *Bhuri* class, where *bajri* is raised. The out-turn of the year was fair. On the left, was the wet land. The water in the wells is *saline.* The area attached to the wells is extensive, as the land once watered by them bears no crop for the next two years. The distance of the land from the well necessitates the digging of *adwanias* from where (L. 3, para. 17.) water is again lifted by *sundias.* The wells are situated along the banks of Phikaria Bala which is a feeder of the Guya.

Bhandai is a small village containing only a few houses thatched with mud and grass. It has 11 *kharchiya* wells. Inspected Badi and Titia wells and then he site for a proposed *bundh* to divert he above *nala* into the Kharda depression.

This project suggested certain points or consideration—

(1) Kharda is a *jagir* village, but the *Jagirdar's* consent to exchange it for another has been secured.

(2) Past experience from *Jaswant Samand* has shown that the level of the water of wells in villages below the bund is appreciably raised and so there is no danger on this head. As regards its effect on inundation, it is a matter on which no opinion can summarily be formed without a thorough enquiry.

(L. 3, para. 3)

(3 The *nala*, if diverted, will lessen the strength of the Guya flood, which every year interferes with the passenger and goods traffic.

From here we passed through *Sewaj* and *Magra* fields.

The area under cultivation is —

Chahi ...	...	1,428	bighas.
Matiyali Sewaj	...	484	,,
Bhuri Sewaj	...	303	,,
Matiyali Barani	...	189	,,
Bhuri ...	...	526	,,
Magra ...	...	319	,,

We then rode off to Kharda and reached there at 8-15 A.M. There were a number of ducks in the *Sur* and half a dozen of them were bagged by me. We then chased a black-buck for about five miles, but could not secure it as our horses were tired.

(L. 2, para. 8.)

Reached Pali at 10-30 A.M. Pali was once a famous mart throughout India. It was here that Sihoji, the grandson of Jey Chand of Kanouj, came first.

It is situated on the banks of a big and handsome tank, which presents a very beautiful sight. There are a tannery, a Post Office and a Railway Station. Two cotton presses are also erected near the station.

(L. 5, para. 2.)

There are 95 wells, of which 23 are selected and *rijka* (lucerne) is raised. We inspected Godai and Kharda wells. The former had cotton and chilli crop on it, while the Kharda was being prepared for the spring crops. Sukhdeoji, who had left us at Kharda, joined us here at 11 A.M. after inspecting three villages. Area under cultivation is—

Chahi ...	...	4,430	bighas.
Kali Sewaj	...	706	„
Matiyali Barani	...	9,653	„
Bhuri ...	...	11,047	„

Bigori was announced and willingly accepted by the villages, *viz* :—

Kanawasiya.
Bhurasni.
Nimahera.
Bhombholai.
Sadawas.
Pali.

In the evening we went out for *shikar* and shot a wolf.

Pali is noted for its ivory toys, bed covers, and *pardas*. People are fond of *bhang*.

PALI TO GURHA-AINDLAN.

PALI TO GURHA-AINDLAN.

11th October, 1896.

Late in the last evening the Kherwa Thakur came at Pali, who is a Sirayat amongst the Jodhas. Though a boy of about nine years, he is too fat for his age. This may be attributed to want of physical exercise. I ordered a cricket kit to be given to him with directions to take regular exercise. He is reading the Second Book of English with the help of a private tutor.

Left Pali early in the morning. We rode across the river. There was a little water in it. Inspected Badi and Nokhri wells. The water of Badi is sweet. It yields two crops in a year. It had cotton, *bajri, makki* and vegetables standing. Other wells were ploughed for spring crops. Then came the *Barani* fields. *Bhuri* was followed by *Matiyali*. *Bajri* out-turn is pretty fair. *Til* and *jawar* crops are standing, the latter in good condition. Reached Manpura at 6-30 A.M. It is a small village with about 32 houses. Its hill is crowned with two temples. The one on the highest is of Shiva and the other is a Jain temple. There is a potter in the village, who makes handsome and neat cups, jugs, and other earthen pots. Itolai Talao to the west of the village holds water for eight months. When it gets dry, the villagers use well water. The total area is—

Chahi	... ...	890 bighas.
Matiyali	... ...	260 ,,
Bhuri	... ...	650 ,,

We rode along the skirts of the hill and entered Hamawas limits. After passing through *Bhuri* soil, we came across a rivulet with no water in it; on the other bank are the wells. We inspected Nimadiya, Adwaniya, and Dhimri. Their water is *kharchi*. They yield one crop in two years. They were ploughed for spring crops. There are 18 wells, of which four are pucca.

In the village, there is a good number of *Mahajans*. There are altogether 190 houses. Sirvis and Ghanchis are the chief agriculturists. An artisan class called Gawarias live here and make fine wooden combs. To the east is the village *talao* and the *Pichka* wells. One is for cattle only, and the other is for the villagers,—a healthy distinction.

(L. 1, para. 7.)

The area is—

Chahi ...	...	1,482 bighas.
Matiyali Sewaj	...	495 "

Matiyali Barani	...	4,807	bighas.
Rati Barani	...	155	"
Magra ...	...	421	"

After leaving the village, we passed through blocks of *Rati* and *Matiyali* land. In good years, it produces gram. The villagers wanted to raise embankments to flood their fields. As all the catchment area of the proposed embankment lay within the village limits and did not affect other villages, their request was approved of, and the necessary sanction accorded. Then we took up the metalled trunk road, passed Gundoz on our way, and left the trunk road about a mile and a half from Aindlan, a hamlet within the limits of Gurha, a *Khalsa* village. *Til* and *bajri* fields were seen. Kutcha wells on one hand and the *talao* with a long sheet of water on the other hand of the road, marked the near approach to Aindlan, which has two *bases*—Aindlan Charnan and Aindlan Juni under *Khalsa.* The latter has 60 houses, the population being almost exclusively that of Rajputs. It has 27 wells, of which all are kutcha. Left Aindlan at 10-45 A.M.

There are crocodiles in the tank. We shot one, but it was only about 3 feet long ; another, a big one, never came up after being hit in the side.

We passed through a plain studded with *jal* trees and then inspected the *jaos* of Thumariya, Balia, Lukhava and Soninji wells. Maize, cotton and chillies were standing. At the wells some men were employed in ploughing the land, some in levelling it with a clod-crusher (सवाल) and thus preparing it for spring crops, and some in cutting *makki.* The wells are worked with Persian Wheels and with *charas* and *lao.* The water is sweet in some, and rackish in others.

(L. 8, para. 7.)

Reached Gurha at 11 A.M. It is two miles from Aindlan, and 19 miles from Pali. It is a good village with a population of 500 houses, of which 200 belong to agriculturists, 80 to *Meenas* and 100 to *Mahajans*. It has a Police Thana and is the seat of the Howala Circle. Our camp was laid out just on the bank of the rivulet.

The assessment was announced to the villagers of Hemawas, Aindlan and Gurha. The rates and well amounts were accepted. In the village the *Meenas* are amongst good *Karsas*.

In the evening, we went out shooting towards *jor*, and bagged two splendid black-bucks and shot a crocodile about 6 feet long.

The total area of the village is—

Chahi	5,931	bighas.
Kali and Bhuri Sewaj	123	,,
Matiyali Sewaj ...	213	,

Matiyali Barani	856	bighas.
Bhuri Barani	246	,,

UNDER MEENAS.

Matiyali Sewaj	299	,,
Kali Sewaj	193	,,
Bhuri Sewaj	64	,,
Matiyali Barani	969	,,
Bhuri Barani	50	,,

GURHA-AINDLAN TO MINIYARI.

GURHA-AINDLAN TO MINIYARI.

12*th October*, 1896,

Left Gurha at 5-30 A.M. We passed through *Barani* fields belonging to *Meenas*. The *til* crops in some were good, and in others almost parched. The *Meenas* are given land towards the *jor*. The Korna Talao, though large, has no water-fowls in it. We passed Korna at 6-30 A.M. Bala could be distinctly seen from the higher land of Korna. We entered Bala limits at 7-15 A.M. The village site was only a little distant from the boundary line. It is a village with very extensive area, which is bordered by hillocks, which aid in flooding its fields during the rains. The houses are all kutcha with tiled roofs. Natrayat Rajputs who have no *parda* system, and in whom widow marriage is allowed, are the chief cultivators. The village has 108 houses, of which 30 belong to the Rajputs.

The assessable area under cultivation is as follows:—

Chahi ...	... 1,388	bighas.
Kali Sewaj	... 395	„
Bhuri ...	... 4,025	„
Magra ...	... 53	„

Left Bala at 7-30 A.M. and inspected *Relia* wells and *Kali Matiyali Sewaj* fields, which produce wheat and gram. They were prepared for the *rabi* crops.

There are 49 *kharchiya* wells which are all kutcha, and the water is scanty. These wells are arranged in three belts: those skirting the hillocks are called *Magrias*; those down in the plain flooded by the drainage of the hills are called *Relias*, and those lying between these two belts are called *Kerias*. We crossed a hard flat *khari* land on which scarcely any grass was seen, but the expanse to the left formed a beautiful *jor* in which we shot three black-bucks and one *chhikla.* Further on came a kutcha *bundh.* After leaving the *bundh* we came across a large area of undulating *Bhuri* soil where *bajra* and *til* were raised and the out-turn was fair. The limits of Miniyari commenced from Selariya hills. The spot was marked by a red flag.

Here was a rough country with numerous bushes and petty *nalas.* Near the village, one extensive plot of *Matiyali* was green with *til* crops. It was formerly a *jor,* but was brought under cultivation this year. Reached Miniyari at 11 A.M., after passing by the tank which has a small *oran* in its *agore* wooded with *babul* trees. The village is situated just at the foot of a hillock. There are 188 houses, of which 60 belong to Maru

Koomars, who are the chief agriculturists, and 28 to Natriyat Rajputs, who also cultivate *Khalsa* land.

We inspected two wells, Bhadarwa and Badliyo. *Bajri* was reaped, but cotton was standing. There are 13 wells, of which only four are kutcha. With the exception of *kharchiya*, Dedhava and Badi all have sweet water. The *jama* on wells and the rates on different kinds of *Barani* soil were announced, and they were accepted by the *Chowdries.*

In the evening, we went out for *shikar;* returned empty bag.

Til, jawar, gowar, bajri, and *moong* crops were standing. The first two were being cut and collected in some places. With the exception of the late sown *til,* the out-turn was good. Returned to the camp at 7-30 P.M. It was pitched on the *jao* of Bhadarwa well.

(L. 10, para. 32
(L. 10, para. 21.)

The total area under cultivation was—

Chahi	447	bighas.
Sewaj	405	"
Matiyali	1,991	"
Pili	1,327	"
Bhuri	11,655	"
Magra	579	"
Dhora	132	"

On inquiry, it is found that villagers pay their rent through the *Chowdries* and *Patwaries* to the *Hawaldar* who sends it on to the Pargana Customs for remission to the Treasury, with an intimation to the *Hawala Darogah* of the amount so sent.

MINIYARI TO JODHPUR.

MINIYARI TO JODHPUR.

13th October, 1896.

Left Miniyari at 5-30 A.M. for Giradara, the last village to be inspected in the Pali Pargana. It was a clear morning. On each side of the road, were *Barani* fields of the *Bhuri* with the *bajri* crop and of the *Magra* class with the *til* crops standing. In the small plot, *chanvla* was also found to have been cultivated. Further on, *Dhora* fields were passed where *bajri* had been sown and reaped. We came to Gurdayan, a *jagir* village, at 8-45 A.M., and reached Giradara at 9-15 A.M. It is situated on a mound. The land rises gradually. The soil to the south is a rich *Matiyali*. The wells are situated towards the east, north and west on a *nala*. There are 43 wells, out of which 25 are *mithani* and the rest are *kharchi*. Ganero, Juno and Navo, and Bandwa were seen. No crops were standing on them, but the spring crops will be raised. The *kharchiya* yield one crop of wheat in two years, and the *mithani* one crop every year.

There are 128 houses, of which 43 belong to agriculturists.

The area is as follows :—

Chahi	2,828	bighas.
Matiyali Sewaj ...	162	„
„ *Kali Sewaj* ...	52	„
„ *Barani* ...	3,907	„
Bhuri Barani ...	1,664	„
Retli Selaba ...	15	„

In the *talao*, *singoras* are planted, while melons are grown in *Retli Selaba* in the river bed.

Giradara is a *Mushtarka* village, half being *Khalsa* and half under *jagir*. Left Giradara at 9-30 A.M. On our way, we passed through blocks of *Bhuri* soil. *Bajri* had already been reaped. The out-turn was good.

Throughout the pargana, the grass produce was excellent ; *bajri* out-turn, good ; early sown *til*, good, and *moong* and late sown *til* had entirely failed. *Jawar* produce was fair ; cotton crops promising and prospects of the *rabi* favourable.

Reached Tanki at 10-5 A.M. The pargana is generally well interspersed with rain rivulets and abounds in big *talaos*.

Nim and *babul* trees are found on the well *jaos* and near the village. On *talaos* we see *bar* and *pipal*.

Rohira and *imli* are seen thinly scattered. The leaves of *nim* trees are used as fodder for camel and hence they appear stunted near Pali.

Ukkarri are found at the entrance of villages.

The average rainfall is 14 inches 50 cents.

Reached Jodhpur at 1-20 P. M.

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